

## SOME NEW SPECIES OF JASSOIDEA.

S. E. CRUMB,

U. S. Bureau of Entomology.

This paper includes descriptions of twelve new species of Jassoidea mostly from Tennessee, and a description of the male of *Deltocephalus mendosus* Ball.

***Deltocephalus visendus*** n. sp. (Pl. XIX, figs. 3, 4).

Pale cinereous, resembling *reflexus* in form and markings. Face not distinctly bicolored. 3.4 to 4.2 mm. long, 1. mm. broad.

Vertex flat, as long as its width between the eyes, nearly two and one-half times as long on middle as next eye, nearly twice as long as the pronotum, clypeus short, tapering, broad, apex broadly truncate, one-third the length of the front, pronotum twice wider than long. Elytra in form and venation as in *reflexus*, but with two cross nervures, claval veins confluent through the middle fourth of the outer vein.

Color: General color pale cinereous, vertex with the apex white, margined laterally with black, an orange line from apex toward the ocelli, ocelli red, a pair of median transverse bars on vertex, another pair of convergent submedian spots near the base and six longitudinal stripes on the pronotum, pale brownish fuscous, elytra with black spots outside the anterior juncture of the claval veins, behind the first cross vein and in the third apical cell. Face black above, becoming brownish fuscous below.

♀ Ultimate ventral segment twice as long as the penultimate, twice as broad as long, side margin narrowed from before the middle, the lateral angles produced, short, roundly lobate, the posterior margin gently emarginate, the median fourth subangularly produced and minutely notched at apex, surpassed by the lateral lobes. Segment pale with a dark, median apical area.

♂ Valve triangular, twice as broad as long, three times as long as ultimate segment; plates twice as long as valve, nearly one-half longer than broad, side margin nearly straight, convergent, abruptly constricted about one-third from the apex, beyond which the tips are nearly parallel, blunt and minutely excavated on the inner margin. Pygofers about one-fourth longer than the plates, distinctly compressed from near the base.

Described from two males and two females collected by the author, November 19, 1914, at Jacksonville, Florida.

***Deltocephalus funabulus*** n. sp. (Pl. XIX, figs. 17, 18).

White, resembling *albidus*, with all the veins of the elytra margined with dark fuscous, face black above and abruptly pale yellow below. 3.7 to 4. mm. long, 1.1 to 1.5 mm. broad.

Vertex flat, one-fourth longer than its width between the eyes, twice as long on middle as next eye, one-half longer than the pronotum, tip blunt; clypeus tapering, truncated at apex, cheeks broad, slightly emarginated beneath the eyes, the lateral angles obscure; pronotum twice broader than long, elytra narrow, appressed, as long as abdomen, with the claval veins usually separate or united only by a cross nervure, two cross nervures in the corium, central antecapital cell simple, venation as in *albidus*.

Color: General color white, markings closely resembling *albidus*, vertex yellow with margin and apex white, apex margined antero-laterally by two small, black dots and posteriorly by a larger black dot; ocelli red; a narrow marginal line from apex toward ocellus, orange, a pair of slender median transverse bars and a pair of convergent curved submedian basal spots, continuing the submedian thoracic stripes, pale brownish fuscous. Thorax with four broad longitudinal pale fuscous stripes. Elytra with nervures white, narrowly margined with dark fuscous. Venter dark. Last ventral segment of the female concolorous with the remainder of the venter.

♀ Last ventral segment three times as long as the penultimate, three-fifths as long as broad, side margins distinctly narrowed from before the middle, between their angular posterior limits the posterior margin is gently, roundly emarginate with a large rounded median lobe slightly exceeded by the lateral angles, and bearing a small apical notch and a pair of longitudinal black dashes.

♂ Valve rounded, two and one-half times broader than long; plates one and one-half times longer than valve, three-fifths as long as broad, lateral margin convex, tips blunt, slightly divergent, pygofers very large, somewhat depressed, inflated, one and one-half times broader and three times as long as the plates, with a broad, dark fuscous area behind the plates, the inner margins pale.

Described from thirty-three specimens, taken at Galena, Kansas, and Clarksville, Tennessee. The former taken during October on *Aristida oligantha*, the latter taken during September from *Aristida gracilis*. Collected by the author.

#### **Deltocephalus mendosus** Ball. (Plate XIX, fig. 21).

This species was described from the female only (Can. Ent., Vol. LXIII, p. 202) as a variety of *fraternus*. Recently I have collected a single male having the peculiar markings of the vertex and the venation of *fraternus*, but differing widely from the male *fraternus* in the genitalia. If, as it seems quite probable, this is the male of *fraternus* this variety is certainly worthy of specific rank. The male is described below:

♂ Valve large, acutely triangular, somewhat upturned at tip, as long as broad; plates broader than valve at base, nearly as long as broad, exceeding valve by nearly half its length, the lateral margins irregularly convex, tips oblique, rounded; pygofers exceeding the plates by nearly their own length, without finger-like appendages found in

*fraternus* and excavated and inflated basally for the reception of plates, the apical third produced into a slender, cylindrical process. 3.6 mm. long, 1.2 mm. broad.

***Deltocephalus pyrops* n. sp.** (Pl. XIX, figs. 15, 16).

Vertex Platymetopius-like, elytra white, the venation outlined with dark fuscous, the costal area canary yellow. 3.6 to 4. mm. long, 1.3 mm. broad.

Vertex flat, acutely angulate, slightly recurved from near the base, twice as long as width between the eyes, nearly three times as long on middle as next eye, two and one-half times as long as the pronotum, face and especially the front strongly convex, not quite one and one-half times longer than broad, front narrow, four times as long as the clypeus, clypeus tapering, exceeded by the tips of the genæ, margin of genæ strongly oblique and nearly uniformly convex from eye to clypeus, pronotum nearly two and one-half times wider than long, elytra nearly as long as abdomen, narrowed slightly toward the tip, claval veins and central anteapical cell variable.

Color: Vertex, pronotum and scutellum pale brownish yellow; vertex with oval apical area white, margined laterally with black and posteriorly with fuscous, two pairs of transverse, fuscous dashes on the disc, one anterior to and the other posterior to the ocellus; ocelli, eyes and often the ovipositor bright red; pronotum with a fuscous band back of each eye; elytra white, the nervures narrowly outlined with dark fuscous, the costal area pale canary yellow; venter pale; face pale yellow, broadly margined above, excepting the tip of front which is white, with dark fuscous, which on the front encroaches upon the yellow in the form of three or four well marked teeth.

♀ Ultimate ventral segment nearly twice as long as the penultimate, one and one-half times as broad as long, narrowed posteriorly to the distinct lateral angles, between which the posterior margin is obliquely truncated, to near the middle where it is broadly incised nearly one-half way to the base, the apex of this incision bears a triangular tooth, the tooth and surrounding area deep black.

♂ Valve subangulate, twice as broad as long; plates one and one-half times as long as the valve, and one and one-half times as broad as long, their common outline broadly oval, the sides rounding strongly to the blunt, slightly divergent tips, pygofer large, one and one-half times as broad and nearly two and one-half times as long as plates, with a pair of arcuated fuscous lines and more or less red behind the plates.

Described from thirty-six specimens collected September, 1914, by the author at Clarksville, Tennessee, on *Aristida gracilis*.

***Deltocephalus arundineus* n. sp.** (Pl. XIX, figs. 11, 12).

Near *inimicus*, but in shape and markings resembling a *Scaphoideus* of the *sanctus* group. 3.3 to 3.7 mm. long, 1.2 mm. broad.

Vertex nearly flat, one and one-half times longer than width between eyes, three-fifths as long at eye as on the middle, as long as pronotum, margin thick, frontal sutures convex, clypeal suture obsolete, clypeus parallel margined, pronotum twice as wide as long, venation of elytra much as in *inimicus*, claval veins united by a cross vein near the middle of the inner claval vein, outer vein united to claval suture by a few supernumerary veins near the apex, second cross nervure present, central antepical cell constricted and divided by a cross vein, outer antepical cell rectangular at apex, elytra longer than abdomen, appendix broad, more nearly truncate at apex than in *inimicus*.

Color: Vertex white, four marginal dots and two smaller ones next the eye black, the apical pair triangular, a large irregular spot on the disc narrowly connected with the black dots next the eye and a pair of convergent dashes near the base, fuscous brown, ocelli white; pronotum fuscous, the anterior margin and three longitudinal stripes pale, anterior margin with a dark fuscous spot behind each eye, and a paler fuscous area on the middle; elytral venation white, margined with fuscous, basal third of clavus white, an elliptical fuscous area at each angle, an oblong area next the claval suture, a spot on the costa, and the third apical cell, black, all these black markings being the accentuated portions of a common cruciate fuscous apical figure and a fuscous more basal saddle.

♀ Ultimate ventral segment three times as long as penultimate, nearly twice as broad as long, roundly narrowed posteriorly, the lateral angles produced, lobate, the posterior margin obliquely excavated one-fourth to base of segment, with the apex of excavation convexly subtruncate, and one-third the width of the segment.

♂ Valve rounded posteriorly, twice longer than ultimate segment, nearly three times as broad as long, convex anteriorly; plates four times as long as valve, more than one-half longer than broad, concavely narrowing to the attenuate tips which equal the pygofers. Pygofers very densely clothed with bristles.

Described from ten females and eight males taken on *Arundinaria tecta*, July and August, 1914, by the author at Clarksville, Tennessee.

***Deltocephalus vinnulus* n. sp.** (Pl. XIX, figs. 1, 2).

Related to *compactus* with very similar genitalia in both sexes, but much paler. 2. to 2.6 mm. long, 1. mm. broad.

Vertex convex, slightly longer than width between eyes, nearly one-half longer on middle than next eye, margin thick, tip blunt, as long as pronotum, clypeus parallel margined, suture obsolete, pronotum twice as wide as long, elytra hyaline obliquely subtruncate at tip, venation pale, claval veins separate, a few supernumerary cross veins along the sutural margin, central antepical cell divided by a cross vein, outer antepical cell rectangular at apex.

Color: Vertex, including ocelli, white, the anterior half black, bearing a white, squat, T-shaped figure, the base of which is formed by a

white dot on the apex, a fuscous cloud on the disc, remainder of insect dorsally and ventrally, excepting the black upper half of face, an uniform, pale yellowish brown, the cells of elytra, the pronotum and venter sometimes faintly infuscated. The macropterous form is the more infuscated.

♀ Last ventral segment of abdomen two and one-half times as long as penultimate, nearly twice as broad as long, distinctly angulate anteriorly with a second membrane excavated nearly to the base as in *compactus*, outer membrane strongly emarginate laterally from the base, exposing a rounded lobe of the inner membrane, the lateral angles obsolete, the posterior margin gently convex with a pair of median pale, fuscous triangles.

♂ Valve convex, twice as broad as long, strongly convex on both anterior and posterior margins, the posterior margin subangulate; plates twice as long as valve, as broad as valve at base, as long as broad, strongly, concavely narrowing to the acute tips, which equal the apex of the pygofers. Pygofers distinctly broader than plates and set with coarse, infuscated bristles.

Described from five males and two females taken September, 1914, by the author at Clarksville, Tennessee, on *Andropogon virginicus*. In the macropterous form the elytra are much longer than the abdomen, while in the brachypterous form the elytra are distinctly shorter than the abdomen.

***Deltocephalus vicilinus*** n. sp. (Pl. XIX, figs. 5, 6).

Resembling *sylvestris*, but smaller, male plates broadly truncated. 2.4 to 2.6 mm. long, .7 mm. broad.

Vertex flat, as long as width between eyes, one-half longer on middle than next eye, strongly angulate, long as pronotum, front very convex, clypeus tapering, rounded at apex, which exceeds the genæ, pronotum twice as wide as long, venation as in *sylvestris*, elytra exceeding abdomen, narrowing posteriorly.

Color: As in *sylvestris*, vertex pale greenish, with a median longitudinal pair of brownish stripes, apex, front margin, and the median stripe whitish, a curved fuscous line from apex toward the black ocelli, pronotum green, paler anteriorly with six pale, fuscous stripes, elytra pale olive green, infuscated apically, the venation pale, front infuscated gray with light arcs, clypeus and genæ pale.

♀ Ultimate ventral segment one and one-half times as long as the penultimate, twice as broad as long, strongly convex anteriorly, posterior margin gently emarginate, the median third slightly subtruncately excavated. A transverse black line at middle.

♂ Valve rounded posteriorly, three times as broad as long; plates distinctly broader than the valve, about three and one-half times as long as valve, nearly as long as broad, as broad as pygofers at base, side margins nearly straight, tips roundly truncated, one-half as broad as base, a common triangular basal area yellow, margined with fuscous, pygofers slightly exceeding plates and densely clothed with coarse bristles.



Described from nine females and three males collected by the author October 8, 1914, at Clarksville, Tennessee, from small grasses on dry upland.

**Athysanus (Stirellus) villicus** n. sp. (Pl. XIX, figs. 24, 25).

Near *punctatus*. With two large, round, black spots on anterior margin of vertex next eye. An orange or fuscous brown band on posterior half of pronotum. Female ovipositor rather strongly exerted. 2.6-3. mm. long and 1. mm. broad.

Vertex convex, as long as width between the eyes, as long as pronotum, one-fifth longer on middle than at eye, bluntly angulate, margin blunt, front convex in both diameters, rapidly narrowing to the parallel margined clypeus. Pronotum two and one-third times as long. The elytra subhyaline, narrowed toward the apex, venation weak, distinct, the central antepical cell divided by a cross vein.

Vertex, anterior half of pronotum and scutellum yellow, posterior half of the pronotum and the elytra pale orange or infuscated brown, two large, round, black spots on anterior margin of vertex next the eye, and two minute, fuscous points at apex; venation pale, face yellow, the front more or less infuscated with a median stripe and lateral arcs pale, a black point beneath each ocellus, venter mostly pale.

♀ Ultimate ventral segment of abdomen one and one-half times as long as penultimate, twice as broad as long, lateral angles rounded, posterior margin gently emarginate, but sometimes appearing angularly excavated, owing to the curvature, strongly curved over the ovipositor, with a small, rounded median tooth. Ovipositor rather strongly exerted.

♂ Valve convex, twice as long as preceding segment, strongly convex on anterior margin, subangulate posteriorly, over twice as broad as long; plates twice as long as valve, nearly as long as broad, side margin nearly straight, tips acute, slightly exceeded by the stout pygofers which are heavily clothed with bristles. A basal median fuscous line on each plate.

Described from seven females and ten males, collected by the author at Clarksville, Tennessee, September and October, 1912, on *Aristida gracilis*, in company with *Deltocephalus pyrops*.

**Phlepsius optatus** n. sp. (Pl. XIX, figs. 13, 14).

Very near *fulvidorsum* in shape, size and genital characters, but paler and differing in details. Length 5. to 6. mm., breadth 1.6 mm.

Vertex convex, nearly three and one-half times as broad as middle length, about one-fifth longer on apex than next eye, one-third as long as pronotum, the margin blunt, front three times as broad between ocelli as at clypeus, slightly longer than broad, convex, the sutures convex, elytra long, appressed at tip.

Color: Vertex, pronotum and scutellum pale yellowish, inscribed with fuscous, the impressed line of vertex and two points on posterior margin, an indefinite mark behind each eye, a pair of spots near apex of scutellum and two points midway between these and the basal angles, black; elytra milky white with a narrow, creamy white submargin along costa, the basal three-eighths very sparsely, the remainder more densely, inscribed with fuscous, showing a tendency to form a transverse band across the tip of the outer claval vein, a spot at tip of outer claval vein, another beyond and outside tip of clavus, several small spots along costa toward the tip and at tip of elytra, black; face pale yellow, fuscous inscribed; legs white, two bands on femora and the insertion of the spines black; venter white.

♀ Last ventral segment twice as long as preceding, one-half wider than long, one-half broader at base than at apex, lateral lobes rounded subangulate, posterior margin roundly emarginate one-fourth to base of segment, with a pair of minute submedian lobes between which the margin is notched, a transverse curved black mark each side of middle; pygofers with short, stout, white bristles set in black points; ovipositor slightly exceeding pygofers.

♂ Valve nearly as long as preceding segment, three and one-third times as broad as long, convex anteriorly, subangulate posteriorly; plates nearly five times as long as valve, one-fifth longer than broad, concavely narrowing from near the base to the broad, subtruncate tips which are exceeded slightly by the pygofers.

Described from three females and three males, collected by the author at Clarksville, Tennessee, May, June and July, 1914.

**Eutettix ziczac** n. sp. (Pl. XIX, figs. 19, 20).

Vertex nearly as long as wide and distinctly angled with a zigzag, fuscous, longitudinal band on elytra. 5 mm. long, 1.6 mm. broad.

Vertex, basal three-fifths shallowly transversely depressed, slightly wider than middle length, one-half longer on apex than next eye, distinctly angulate, angle between vertex and front acute, elytra long, neither flaring nor appressed, one cross nervure.

Color: Vertex pale yellow, washed with orange, four points on anterior margin, a reticulate area on disc and four marks along posterior margin, black, pronotum pale olive, irrorate with black, scutellum yellow, washed with orange with black markings, elytra white, mottled sparingly with orange, venation orange, overlaid with fuscous dots, the fuscous reticulation disposed in a zigzag stripe extending along the scutellar margin and basal three-fourths of clavus and the tip of the wing branching to meet the costa twice between the cross nervure and the base of the central anteapical cell, and once opposite the apex of the outer anteapical cell. Face yellow, irrorated with black. Beneath pale.

♀ Last ventral segment one-half longer than the preceding, nearly two and one-half times as broad as long, gently angularly emarginate, subtruncate.

Described from one female taken at Sabinal, Texas, April, 1910, by the late F. C. Pratt.

**Chlorotettix nacreosa** n. sp. (Pl. XIX, figs. 9, 10).

An uniform pearly white above and below in the female. Deep orange in the male. 5. to 5.5 mm. long, 1.6 mm. broad.

Vertex flat, one-third broader between eyes than middle length, one-half longer on apex than at eye, three-fourths as long as pronotum, distinctly angulate, profile of face and vertex acute, lorae remote from margin of cheek.

Color: ♀ pale, uniform grayish subiridescent white both dorsally and ventrally, the eyes green, spines on legs brownish, ovipositor dark, elytra faintly tinged apically with brownish, venation pale. ♂ Uniform deep orange above and below, eyes green.

♀ Ultimate ventral segment twice as long as the preceding, twice as broad as long, posterior margin triangularly emarginate nearly one-half way to base. The outline broken by a pair of rounded, submedian lobes narrower and shorter than the lateral lobes and with their outline continued across the lateral lobe by a suture.

♂ Valve strongly convex anteriorly, rounded posteriorly, twice as long as preceding segment, nearly two and one-half times as broad as long; plates one-fifth longer than broad, nearly two and one-half times as long as valve, transversely convex, the margin upturned, tips bluntly rounding, sub-truncate, equalling all but the brown apical styles of the pygofers.

Described from eighteen females and four males, collected by the author, July 29–30, 1914, from *Arundinaria tecta*, at Clarksville, Tennessee.

**Chlorotettix vacuna** n. sp. (Pl. XIX, figs. 22, 23).

Size and general appearance of *Balli*, but with genitalia distinct. Length 6. to 6.5 mm., breadth 1.6 mm.

Vertex convex, one and one-half times broader between eyes than middle length, one-third longer on middle than next eye, bluntly subangulate, margin thick.

Color: Vertex, anterior margin of prothorax and the scutellum yellowish, tinged with green, prothorax brownish, elytra subhyaline, brownish, front tinged with orange, venter green.

♀ Ultimate ventral segment two and one-half times as long as penultimate, one and one-half times as broad as long, not tectiform, but uniformly transversely convex from the lateral margins, closely applied to the pygofers, membranous, intricately rugose, lateral margins but little narrowed, the posterior angles distinct, the posterior margin occupied by a broad, sinuated, triangular excavation three-fourths to base of segment, the apical half of the excavation straight margined.



♂ Valve as long as last ventral segment, twice as broad as long, subangulate posteriorly; plates three times the length of valve, two-thirds as broad as long, the outer margin convexly narrowing to the subacute tips, their common figure an elongate oval.

Described from four males and two females collected by the author September 3-4, 1914, Clarksville, Tennessee.

**Chlorotettix vivida** n. sp. (Pl. XIX, figs. 7, 8).

Apparently related to *minima* Baker. 5.5 mm. to 6. mm. long, 1.5 mm. broad.

Vertex convex, one and one-half times as broad between the eyes as long, five-eighths as long at eye as at middle, distinctly angulate, the margin thick excepting at the slightly conical apex, venation indistinct.

Color: Head, thorax and scutellum pale brownish, usually with a greenish tinge, elytra subhyaline, pale green with a brownish tinge more distinct apically.

♀ Ultimate ventral segment of abdomen twice as long as penultimate, twice as broad as long, lateral angles rounded, posterior margin broadly, somewhat sinuately triangularly excavated to about one-half the length of the segment, with a small apical notch.

♂ Valve as long as preceding segment, four times as broad as long, convex posteriorly; plates nearly four times as long as valve, nearly as broad as long, slightly narrower than valve at base, convexly narrowing three-fourths their length, the apical fourth produced into two narrow, parallel margined processes, pygofer equalling plates, densely clothed with spines apically.

Described from three males and nineteen females taken May, July, August and September, 1914, at Clarksville, Tennessee, by the author.

## EXPLANATION OF PLATE XIX.

- Fig. 1. *Deltocephalus vinnulus*, last ventral segment of female.
- Fig. 2. *Deltocephalus vinnulus*, male genitalia.
- Fig. 3. *Deltocephalus visendus*, male genitalia.
- Fig. 4. *Deltocephalus visendus*, last ventral segment of female.
- Fig. 5. *Deltocephalus vicilinus*, male genitalia.
- Fig. 6. *Deltocephalus vicilinus*, last ventral segment of female.
- Fig. 7. *Chlorotettix vivida*, male genitalia.
- Fig. 8. *Chlorotettix vivida*, last ventral segment of female.
- Fig. 9. *Chlorotettix nacreosa*, male genitalia.
- Fig. 10. *Chlorotettix nacreosa*, last ventral segment of female.
- Fig. 11. *Deltocephalus arundineus*, last ventral segment of female.
- Fig. 12. *Deltocephalus arundineus*, male genitalia.
- Fig. 13. *Phlepsius optatus*, last ventral segment of female.
- Fig. 14. *Phlepsius optatus*, male genitalia.
- Fig. 15. *Deltocephalus pyrops*, last ventral segment of female.
- Fig. 16. *Deltocephalus pyrops*, male genitalia.
- Fig. 17. *Deltocephalus funabulus*, last ventral segment of female.
- Fig. 18. *Deltocephalus funabulus*, male genitalia.
- Fig. 19. *Eutettix ziczac*, last ventral segment of female.
- Fig. 20. *Eutettix ziczac*, left elytron.
- Fig. 21. *Deltocephalus mendosus* Ball, male genitalia.
- Fig. 22. *Chlorotettix vacuna*, last ventral segment of female.
- Fig. 23. *Chlorotettix vacuna*, male genitalia.
- Fig. 24. *Athysanus (Stirellus) villicus*, male genitalia.
- Fig. 25. *Athysanus (Stirellus) villicus*, last ventral segment of female.

